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Subject - AI ML Assignment 1.10

Write a code to implement Guess Game Guess Game

constraints / Rules

you have 5 chance to guess correct number which is choosen by computer / friend

Range which is allowed to select a number 1-50

After each guess you should give some tips / hints to user to improve their chance of winning

for example if user guess a number which is higher than actual number you should say `hint: think a low number!

if user guess a number which is lower than actual number you should say `hint: think a big number!`

      if user wins we will show a congrats messege and stop our game

      if any time user guess is out of limit than print a warning message saying Think in Limits 1-50 only!

**Sol:**

import random

def guess\_game():

# Generate a random number between 1 and 50

actual\_number = random.randint(1, 50)

chances = 5

while chances > 0:

try:

# Get user's guess

guess = int(input("Guess a number between 1 and 50: "))

if guess < 1 or guess > 50:

print("Think within limits 1-50 only!")

continue

if guess == actual\_number:

print("Congratulations! You guessed the correct number!")

break

elif guess < actual\_number:

print("Hint: Think of a bigger number!")

else:

print("Hint: Think of a smaller number!")

chances -= 1

print("Chances left:", chances)

except ValueError:

print("Invalid input. Please enter a valid number.")

if chances == 0:

print("Game over. You have run out of chances. The actual number was", actual\_number)

# Run the game

guess\_game()

5.

**Write a program to sort a list without using inbuilt functions (list.sort not allowed)**

**Sol**:

* **Using Bubble Sort Algorithm**

def bubble\_sort(arr):

n = len(arr)

for i in range(n):

for j in range(0, n-i-1):

if arr[j] > arr[j+1]:

arr[j], arr[j+1] = arr[j+1], arr[j]

# Test the Bubble Sort algorithm

my\_list = [64, 34, 25, 12, 22, 11, 90]

bubble\_sort(my\_list)

print("Sorted list using Bubble Sort:", my\_list)

**Using Insertion Sort Algorithm**

def insertion\_sort(arr):

for i in range(1, len(arr)):

key = arr[i]

j = i-1

while j >= 0 and arr[j] > key:

arr[j+1] = arr[j]

j -= 1

arr[j+1] = key

# Test the Insertion Sort algorithm

my\_list = [64, 34, 25, 12, 22, 11, 90]

insertion\_sort(my\_list)

print("Sorted list using Insertion Sort:", my\_list)

* **Using Selection Sort Algorithm**

def selection\_sort(arr):

n = len(arr)

for i in range(n):

min\_index = i

for j in range(i+1, n):

if arr[j] < arr[min\_index]:

min\_index = j

arr[i], arr[min\_index] = arr[min\_index], arr[i]

# Test the Selection Sort algorithm

my\_list = [64, 34, 25, 12, 22, 11, 90]

selection\_sort(my\_list)

print("Sorted list using Selection Sort:", my\_list)